



PROCESS
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PRACTICES

TECHNICAL REVISION
April 2024

Process Control

PIP PCEFL001
Flow Measurement Guideline

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PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

This Practice has been prepared by harmonizing technical requirements from existing standards of major industrial operators, contractors, and standards development organizations. While this Practice is intended to incorporate the majority of requirements, individual applications may have requirements which take precedence over this Practice. Determinations concerning fitness for purpose or application of this Practice to specific project or engineering situations should not be made solely on information contained in this Practice. All Practices are intended to be consistent with applicable laws and regulations. Should this Practice conflict with applicable law or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by this Practice.

Use of trade names should not be viewed as an expression of preference. Other brands having the same specifications are equally correct and may be substituted for those named.

This Practice is subject to revision at any time. For more information refer to PIP ADG001, *Specification for Developing Practices*.

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Process Industry Practices
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PUBLISHING HISTORY

June 1998	Issued	May 2017	Technical Correction
August 2006	Complete Revision	April 2024	Technical Revision
October 2015	Complete Revision		

Not printed with State funds



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Table of Contents

1. Scope	2	4.9 V-Cone Meter	12
2. References	2	4.10 Turbine Meters (Liquid)	13
2.1 Process Industry Practices	2	4.11 Positive Displacement Meters	14
2.2 Industry Codes and Standards	2	4.12 Magnetic Flow Meters	15
2.3 Other References	2	4.13 Mass Meters (Coriolis)	16
3. General	3	4.14 Thermal Flow meter	17
3.1 Flow Metering Quality	3	4.15 Ultrasonic Meters	18
3.2 Flow Element Selection	5	4.16 Ultrasonic Transit-Time Flowmeter	19
3.3 Piping Arrangement	5	4.17 Ultrasonic Doppler Flowmeter	19
3.4 Mechanical Flow Conditioning	6	4.18 Vortex Meters	19
3.5 Removal of Inertia Type Flow Instruments	6	4.19 Variable Area Meters	20
3.6 Control Valve Location	6	5. Custody Transfer Metering Considerations	21
3.7 Special Equipment	6	6. Flare Gas Flow Measurement Considerations	21
4. Specific Considerations	6	Appendixes	
4.1 Head-type (Differential Pressure) Flowmeters	6	Appendix A: Table 1 - Flow Meter Evaluation	23
4.2 Conventional Orifice Plate	8	Appendix B: Table 1 - Flange Tap Orifice Meter Run Requirements	24
4.3 Conditioning Orifice Plate	9		
4.4 Flow Nozzles	9		
4.5 Venturi	10		
4.6 Averaging Pitot Elements	11		
4.7 Integral Orifice	11		
4.8 Wedge Type Meters	12		

1. Scope

This Practice provides engineering guidance for the selection, design, and application of flow measurement systems.

This Practice provides guidelines, performance considerations, and preliminary recommendations for the selection of flow meters and their general application. This guideline applies to devices used to measure the flow of single phase, homogeneous liquids, vapors, and gases.

This Practice presents commonly accepted meter types but does not limit application choices. Unique or special requirements may require consideration of other meter types.

Specific custody transfer guidelines are not provided and are only mentioned with reference to other industry practices.

2. References

Applicable parts of the following Practices, industry codes and standards, and other references shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

2.1 Process Industry Practices (PIP)

- PIP PCCFL001 - *Flow Measurement Design Criteria*

2.2 Industry Codes and Standards

- American Gas Association
 - AGA Report #8
- American National Standards Institute (ANSI)
 - ANSI-2530/API-11.3 AGA-3/GPA-8185 - *Natural Gas Fluids Measurement - Concentric, Square-Edged Orifice Meters*
 - Part 2 - Specification and Installation Requirements
- American Petroleum Institute (API)
 - *API Manual of Petroleum Measurement Standards (MPMS)*
 - Chapter 5 - Metering
 - Chapter 14 - Natural Gas Fluids Measurement
- American Society of Mechanical Engineers (ASME)

2.3 Other References

- Miller, R.W., *Flow Measurement Engineering Handbook, 3rd Ed.*
- Spitzer, D.W., *Flow Measurement - Practical Guides for Measurement and Control, 2nd Ed.*, ISA
- ASME - *Fluid Meters, Their Theory and Application, H. S. Bean, Ed.*, ASME, 1971